

REMARKS

The above amendments to the above-captioned application along with the following remarks are being submitted as a full and complete response to the Office Action dated October 18, 2006. In view of the above amendments and the following remarks, the Examiner is respectfully requested to give due reconsideration to this application, to indicate the allowability of the claims, and to pass this case to issue.

Status of the Claims

As outlined above, claims 1-2, 4-9, and 23 stand for consideration in this application, wherein claim 3 is being canceled without prejudice or disclaimer, while claims 1, 4 and 8 are being amended to correct formal errors and to more particularly point out and distinctly claim the subject invention. Claims 10-22 stand withdrawn from consideration in this application.

All amendments to the application are fully supported therein. Applicants hereby submit that no new matter is being introduced into the application through the submission of this response.

Prior Art Rejections

35 U.S.C. §102(b) rejection

Claims 1-7, 9 and 23 were rejected under 35 U.S.C. §102(b) as being anticipated by Sun et al. ("Monodisperse FePt Nanoparticles and Ferromagnetic FePt Nanocrystal Superlattices," Science, vol. 287, 17 March 2000). As mentioned above, claim 3 is being cancelled, and therefore the rejection of claim 3 is moot. Applicants respectfully traverse the rejection of claim 1-2, 4-7, 9 and 23 for the reasons set forth below.

According to the M.P.E.P. §2131, a claim is anticipated under 35 U.S.C. §102 (a), (b), and (e) only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.

Claim 1

The Examiner asserted that Sun discloses a magnetic recording medium having a substrate layer with a magnetic layer thereon containing nanoparticles formed from FePt dispersed in an organic binder including a crosslinking agent such as oleyl amine, the easy axis of magnetization of the particles is either perpendicular to the substrate plane or parallel to the substrate plane. Applicant respectfully disagrees.

Claim 1 as amended recites that a magnetic recording medium at least comprises: a substrate having a surface; a nanoparticle layer comprising an array of nanoparticles having an average particle size of at least 1 nm and not more than 20 nm, consisting of metal elements and containing at least one element selected from the group consisting of Fe, Co, Ni, Mn, Sm, Pt, or Pd; and an organic compound located between said array of nanoparticles, wherein an easy axis of magnetization of said nanoparticles is orientated substantially parallel to a direction which is at a particular angle to said substrate surface, and said organic compound located between said array of nanoparticles comprises an organic compound coating said nanoparticles or a compound derived from said organic compound coating the nanoparticles and a crosslinking agent capable of binding adjacent organic compounds when it is irradiated with a light beam, radiation or heat.

In contrast, Sun does not show a magnetically anisotropic media, but a magnetically isotropic media. Sun merely shows annealing FePt nanoparticles at a high temperature to convert the internal particle structure from a chemically disordered face-centered cubic (fcc) phase to the chemically ordered face-centered tetragonal (fct) phase (Abstract on page 1989). This is because FePt nanoparticles in a fcc crystal structure do not have magnetization, and high temperature annealing is applied to express magnetization since the crystal structure need to be changed from fcc phase to L10 phase (fct phase), which has magnetization. Sun shows that the coercivity in the in-plane direction is increased by increasing the annealing temperature (col. 1 on page 1991, Fig. 3). Sun further states that there is little difference between the in-plane coercivity and the out-of-plane coercivity (i.e. coercivity in the perpendicular direction) (col. 1 on page 1991). In other words, the coercivity in the perpendicular direction is also increased simultaneously by increasing the annealing temperature, and therefore, recording media become isotropic, not anisotropic. Furthermore, Sun states in another article, "MOKE Spectra and Ultrahigh Density Data Storage Perspective of FePt Nanomagnet Arrays," *IEEE Trans. Magn.*, vol 37, p. 2185, 2001, that it is required to improve control over magnetic anisotropy (col. 2 on page 2187). His statement indicates that magnetic anisotropy had not been yet achieved.

Furthermore, a crosslinking agent generally has high reactive moiety on its outer side. Chemical compounds represented by the chemical formulae (1)-(4) shown on page 13 of the specification are the examples of the crosslinking agent. These chemical compounds have high reactive moiety such as R1 – R9 on their outer side. In contrast, Sun shows using oleyl amine. However, oleyl amine is a mere legand with very low bridging ability. High reactive

moiety is on FePt nanoparticles, not oleyl amine. There is only low reactive moiety on the outer side of oleyl amine. In other words, oleyl amine shown in Sun cannot be a crosslinking agent capable of binding adjacent organic compounds.

Therefore, Sun does not show every element recited in claim 1. Accordingly, claim 1 is not anticipated by Sun.

Claims 2, 4-7, 9, 23

As to dependent claims 2, 4-7, 9 and 23, the arguments set forth above with respect to independent claim 1 are equally applicable here. The corresponding base claim being allowable, claims 2, 4-7, 9 and 23 must also be allowable.

Furthermore, the Examiner fails to present that Sun shows elements recited in dependent claims 2, 4-7 and 9.

In sum, claims 2, 4-7, 9 and 23 are not anticipated by Sun.

35 U.S.C. §103(a) rejection

Claim 8 was rejected under 35 U.S.C. §103(a) as being allegedly unpatentable over Sun. This rejection is respectfully traversed for the reasons set forth below.

According to the Manual of Patent Examining Procedure (M.P.E.P. §2143),

To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both not be found in the prior art, not in the applicant's disclosure.

Claim 8 is being amended so as to depend upon claim 1. As such, the arguments set forth above with respect to independent claim 1 are now equally applicable to claim 8. The corresponding base claim not being anticipated by Sun, dependent claim 8 must also be unobvious over Sun.

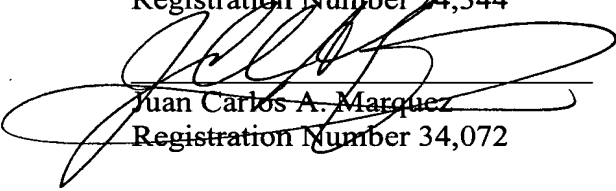
Conclusion

In view of all the above, Applicants respectfully submit that certain clear and distinct differences as discussed exist between the present invention as now claimed and the prior art references upon which the rejections in the Office Action rely. These differences are more than sufficient that the present invention as now claimed would not have been anticipated nor rendered obvious given the prior art. Rather, the present invention as a whole is distinguishable, and thereby allowable over the prior art.

Favorable reconsideration of this application as amended is respectfully solicited. Should there be any outstanding issues requiring discussion that would further the prosecution and allowance of the above-captioned application, the Examiner is invited to contact the Applicants' undersigned representative at the address and phone number indicated below.

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